FDI activity and worker compensation: evidence from U.S. non-manufacturing industries

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FDI ACTIVITY AND WORKER COMPENSATION: EVIDENCE FROM US NON-MANUFACTURING INDUSTRIES

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Abstract

This study examines worker compensation effects of foreign direct investment (FDI) activity in US non-manufacturing industry sectors. A clustered standard error correction is used when estimating wage and non-wage compensation equations, with special attention given to FDI's effect by worker educational attainment and union status. Wage findings reveal that FDI activity is associated with a wage premium for highly educated non-union workers and with union rent erosion for all educational-gender groups excluding females with low educational attainment. Non-wage compensation analysis reveals FDI activity is generally associated with significantly higher probabilities of workers receiving employer financed non-wage compensation for union and non-union workers regardless of their level of educational attainment.

FDI ACTIVITY AND WORKER COMPENSATION: EVIDENCE FROM US NON-MANUFACTURING INDUSTRIES.

I. Introduction

Foreign Direct Investment (FDI) is a common form of globalization that enhances international competition and has important implications for domestic labor markets. Most labor market studies focus on the wage and employment effects of FDI in manufacturing industries. Examining labor market outcomes in these industries is significant in part because they are vital to national economies and provide jobs that pay well. Findings from research on FDI suggest that such industry activity contributes to the welfare of workers in manufacturing by promoting higher domestic wages in developed countries (Lipsey, Sjöholm, 2004 and Almeida, 2007). These countries, however, are experiencing a significant shift away from manufacturing as the interest of foreign investors also shifts away from these industries. In 1987 40.64 percent of domestic US workers employed by foreign owners worked in manufacturing industry sectors. In contrast, by 2007 this group of domestic workers comprised only 29.99 percent of the work force employed by foreign owners in the US.[1] This employment trend has major implications for a growing share of workers in developed countries, yet there is a dearth of research examining the effect of FDI activity on labor earnings in *non-manufacturing* industries.

This study contributes to the body of research on labor markets by examining the effect of FDI activity on wage and non-wage compensation in non-manufacturing industry sectors in the US. The analytical framework used to examine the labor market in

[1] Information on US domestic employment by foreign owners is taken from the Bureau of Economic Analysis (BEA) Foreign Direct Investment Establishment Data for 1987 and 2002.

non-manufacturing industries differs from that used to study the labor market for manufacturing industries, since it is acquisition of knowledge based skills such as an understanding of financial instrument, health care techniques, and logistics operations, rather than the operation of machinery that matters more for the productivity and performance in most non-manufacturing industry sectors. Hence, this study focuses on the role of educational attainment as a factor determinant of labor compensation. We test whether foreign investment is associated with a pay premium for highly educated workers. We also test whether foreign investment is associated with labor cost saving behavior by examining FDI's influence on union premiums. By examining FDI's influence on union premiums we also consider foreign investors' labor saving practices. These tests are performed using information on workers' wages as well as using information on workers' pension and health care coverage. Including non-wage compensation in the analysis of FDI's labor market effect is new to the literature and is significant in part because pension and health care benefits account for a large share of firms' labor cost and thus can be viewed as a potentially large source of cost-savings by foreign investors.

II. Potential Labor Market Effects of FDI

Standard FDI theory suggests the opportunity to gain market power in the host country through cost savings creates an incentive for foreign investment (Dunning, 1977, 1981).[2] Within this conceptual framework foreign investors in non-manufacturing

[2] The conceptual framework Dunning (1977, 1981) uses to examine FDI identifies three categories for enhancing foreign owner's market power. Within this framework foreign owners decide to invest abroad if they have ownership advantage, location advantage, or internalization advantage. Ownership advantage is the market power arising from the ownership of a patent, blueprint or reputation regarding products or production processes. Location advantage

industries are likely to take advantage of productivity enhancing knowledge that is unique to the foreign owner and is not readily available to domestic producers in the host country, (Aitken, Harrison and Lipsey, 1995). Productivity gains in the non-manufacturing sector arise because competitive foreign owned firms are reported to possess intangible assets such as technological know-how, marketing, and managerial skills. Making the best use of such assets requires employment and retention of highly skilled and well-educated workers. Foreign investors in non-manufacturing industries, therefore, have an incentive to offer high compensation to attract highly educated workers. Upward pressure on wages of highly educated and skilled workers also arises from foreign firms competing with their domestic rivals for workers from the same domestic pool of qualified local workers (Martins, 2004).

Empirical evidence used to examine the educational background of workers in relation to foreign investment primarily focuses on labor markets in manufacturing industries and supports the notion that compared to domestic firms foreign-owned firms pay higher wages for workers with a given level of education. For instance, Lipsey (1994) reports that foreign owned establishments tend to be in higher wage industries, but still pay higher wages within these industries. These high wages, though, are not necessarily due to foreign acquisition improving the overall level of education of the

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contribute to foreign owners market power if producing in a foreign market presents cost advantages that are not available from producing at home or exporting. Low transportation costs, avoidance of tariffs and quotas, and easy access to customers overseas are examples to cost-saving advantages associated with location choice. Last, internalization advantage is the gains foreign owners derive from providing a service through their own foreign subsidiaries as opposed to selling the blueprint to a foreign firm and monitoring through business agreements. The internalization advantage of the FDI is most appropriate for the analysis of this study because the nature of the services provided by non-manufacturing industry sectors requires that the knowledge of business operations is mostly accumulated and retained in the company as opposed to being transferred across borders. These intangible assets are not easily relocated; therefore foreign-investors in non-manufacturing sectors are motivated to take steps toward building those assets in the best way that they can. The most apparent way to achieve the internalization of the intangible assets is derived from choosing and keeping the most skilled and well-educated workers. The foreign investor, therefore, has an incentive to offer higher compensation to highly educated workers.

industry work force. Rather, findings from past research by Almeida (2007) suggests that foreign investors are likely to select the best performing domestic firms that employ already highly skilled and productive workers.

Even though past evidence suggests that while the employment of highly educated workers contributes to relative high wages paid by foreign owners, FDI activity may not always promote elevated wage levels. Foreign owners might seek a competitive advantage by eliminating economically unjustifiable high labor costs such as union rent. Research identifies union rent as a potential source of such cost savings. For instance, Zhao (1998) reveals that greater FDI activity actually depresses the wages of union members even if their union representative tries to obtain high wage levels at the expense of job loss.[3] Empirical evidence reporting FDI activity's effect on union wages supports Zhao's hypotheses by revealing that FDI is associated with declining union wages paid to male workers in manufacturing compared to increasing wages for nonunion male workers in US manufacturing (Alhakimi, and Peoples, 2009).

In sum, this review of past research reveals the significance of access to a highly educated work force and the opportunity to reduce union rent as factors influencing FDI's effect on domestic wages in manufacturing. Extending the analysis to labor markets in non-manufacturing industries allows for testing whether the role of education is critical in these sectors, especially given that many of these industries sectors rely heavily on the services of workers in professional, scientific and management fields, as well as in finance, insurance, or educational services. Extending the analysis to examine FDI

[3] Zhao's findings are driven by two FDI effects. One is the collusion effect, which models two multinationals cooperating against the labor union to negotiate lower wages. The other FDI effect is depicted by the foreign owner's ability to reassign operations to lower wage locations overseas as leverage to negotiate lower wages at current domestic locations.

activity's influence on union wage premiums in non-manufacturing industries is significant in part because many non-manufacturing US industries experiencing FDI activity are some of the most unionized sector of the private sectors.[4]

A more complete analysis of FDI's influence on wage payments to highly educated workers and union workers also requires examination of non-wage compensation. Economic theory suggests that employers use funding of non-wage compensation such as pension and health care plans as an incentive to maintain productive workers. Within the conceptual framework of this study, foreign investors demand for highly skilled and educated workers suggests that they have an incentive to offer fringe benefits to domestic workers. In addition, compared to domestic employers, foreign owners may have greater incentive to provide their employees the opportunity to receive employer funded non-wage compensation packages because these owners face greater public scrutiny over their labor practices. A high probability of public disapproval arises because these owners are likely to have a shorter history with the domestic work force and as a result are viewed by the public as outsiders exploiting the vulnerability of indigenous workers (Alhakimi, and Peoples, 2009). Still, there are instances when foreign investors may be inclined to pare back funding on non-wage compensation such as relatively expensive union pension and health care plans. Foreign owners are in a position to avoid public backlash from negotiating union concessions over benefits if they are viewed as promoting the development of local labor markets by

[4] Metal mining, coal mining and urban transportation services constitute industries with the highest amount of foreign investment in US non-manufacturing industries. Information from the 2002 Foreign Direct Investment establishment files reveals that respectively 39.7, 19.3 and 26.6 percent of workers in these industries are employed by foreign owners in 2002. Union information reported on Barry Hirsch and David Mcpherson's union source web-site reveals that for the same year 23.5, 22.5 and 38.0 percent of the workers in employed in these industries belonged to a union, compared to only 14 percent for the entire US work force (www.unionstats.com).

investing in non-manufacturing industries that historically experience decreasing employment. Indeed, metal and coal mining are two US non-manufacturing industries that have experienced significant job losses in the recent past and now receive non-trivial investment from foreign owners.[5]

Even if foreign owners have the latitude to negotiate concessions for non-wage compensation without severe public outrage, union workers may avoid reductions of fringe benefit coverage because unions are motivated to negotiate low wage gains as a tradeoff for the maintenance of these highly valued pension and health care plans. This lack of a definitive hypothesis on FDI activity's influence on non-wage compensation patterns underscores the need to include empirical analysis that explores this component of the worker compensation package.

III. Data and Empirical Approach

This study uses several sources to examine FDI activity's influence on labor compensation in non-manufacturing industries. These sources include industry information on FDI activity and worker information on individuals' personal characteristics, union status, educational attainment level and labor compensation. The FDI measure used in this study is taken from Bureau of Economic Analysis (BEA) Foreign Direct Investment Establishment Data for 2002[6]. Foreign-owned employment

[5] Employment in US metal and coal mining fell from 66,458 and 174,880 to 44,466 and 96,881 respectively from 1983 to 2009. Union membership in these highly unionized industries fell from 25,759 and 107,502 to 13,064 and 79,327 over the same period. Source: www.unionstats.com.

[6] FDI Industry information is published in the US Bureau of Economic Analysis' publication titled, "Foreign Direct Investment in the United States: Establishment Data for 2002." Washington, DC: US Government Printing Office, June 2007. This data source contains the most recent industry information on FDI activity.

shares of the non-manufacturing US industry work force are calculated at the 4-digit NAICS industry level; 145 non-manufacturing industries are classified at this level.

Information on individual workers is taken from the 2002 Current Population Survey Outgoing Rotation Group files (CPS-ORG)[7], and from the 2002 March CPS files. Individual information on worker characteristics and hourly wages are presented in the CPS-ORG files while individual information and non-wage compensation information depicting whether a worker received employer funded pension plan or health care coverage is taken from the March files. The sample populations constructed from both sources are limited to individual respondents age 16 and older. The observation sizes derived from applying this limitation are 173,353 and 9,901, respectively. These sources on individual worker information use three-digit Census codes to identify individual workers' industry of employment. Industry information from these data sources are matched with industry information from the BEA Foreign Direct Investment Establishment Data by using industry value-added output weights to obtain industry measures at the four digit NAICS level and then recoded to correspond to the census equivalent using the Bureau of Labor Statistics industry code conversion.[8]

These data are initially used to estimate the following wage equation separately for men and women by educational attainment level:

$$\text{Ln(wage)}_j = \beta_0 + \beta_1 \mathbf{Z}_j + \beta_2 \textit{estb-size}_j + \beta_3 \textit{FDI}_j + \beta_4 \textit{union}_j + \beta_5 (\textit{FDI} \times \textit{union})_j + \varepsilon_j \quad (1)$$

[7] Current Population Survey (CPS) Labor Extracts 1976-2006, NBER January 2007
[8] Combining FDI data from Census Bureau and domestic data from BEA is also found in Feliciano and Lipsey (2006)

where 'j' indexes individual workers and the dependent variable is the log of real hourly wages of the j^{th} worker.[9] The matrix **Z** consists of a set of worker residency and worker profile variables.[10] These explanatory variables include residency dummies for US geographic regions, and metropolitan residency status. The worker profile measures are dummies depicting a worker's marital, US citizenship, race, full-time, occupational and educational attainment status, as well as the age and age-squared of the individual worker. The variable *estb-size* denotes the average number of workers employed by establishments in the individual worker's employing industry. It is included to account for the possibility that large establishments generate rent that can be shared with workers. The variable *FDI* measures the share of workers employed by foreign owners for a given industry. The variable *union* is a dummy equaling one if the individual belongs to a union. The final variable presented in equation (1) is the interaction of the *FDI* and *union* variables.

The coefficients that are of special interest to this study are β_3, β_4, and $\beta_3+\beta_5$. The coefficient β_3 measures the percentage wage change associated with a percentage change in FDI activity for non-union workers. The coefficient β_4 measures the union log wage differential for workers employed in industries that did not experience foreign investment for the observation year.[11] Last, the sum of the estimated coefficients $\beta_3+\beta_5$ measures the log wage change associated with a percentage change in FDI activity for union workers.

[9] Hourly wage rates are calculated by taking the ratio of individual workers' weekly earnings and weekly hours worked.
[10] A description of the explanatory variables is presented in Table A.1 of the appendix.
[11] Estimated coefficients are converted to percentage differentials by using the formula $(\varepsilon^{\beta}-1)\times 100$.

Non-wage labor compensation equations identifying whether workers are covered by healthcare or pension plans are also estimated. The specification of the healthcare, and pension plan equations are depicted by the following equations.

$$\Pr(pension=1) = \Phi\{ \gamma_1 + \gamma_2\mathbf{Z} + \gamma_3 estb\text{-}size_j + \gamma_4 FDI_j + \gamma_5 union_j + \gamma_6 (FDI_j \times union_j + \varepsilon_j\} \quad (2)$$

$$\Pr(healthcare=1) = \Phi\{ \gamma_1 + \gamma_2\mathbf{Z} + \gamma_3 estb\text{-}size_j + \gamma_4 FDI_j + \gamma_5 union_j + \gamma_6 (FDI_j \times union_j + \varepsilon_j)\} \quad (3)$$

where Φ is a normal probability function, and *healthcare* and *pension* are binary variables with a value of one if a worker is covered by an employee financed health or pension plan, respectively, and zero if the worker is not covered. The explanatory variables are the same as those used in the earnings equation. The coefficients of key interest are γ_4, γ_5, and $\gamma_4 + \gamma_6$. The estimated coefficient γ_4 measures the marginal effect of FDI on in the likelihood of a non-union worker receiving the respective health or pension plan coverage. The estimated coefficient γ_5 measures the union-non-union differential in the likelihood that a worker receives the respective health or pension plan coverage. The sum of the estimated coefficients on the variable *foreign* and the variable *foreign×union* measures the marginal effect of FDI on the likelihood a union worker receiving the respective health or pension plan coverage.

All three equations are estimated using a clustered standard error correction technique that takes into account the possibility that individual worker observations within the 145 industry groups are correlated. While estimates using an OLS technique are not biased for this type of data structure inference testing for industry parameters

would tend to exaggerate their statistical significance for these individual worker-level equations.

The variance-covariance matrix used to compute the clustered standard errors is constructed as follows:

$$VC_{clustered} = \left(\frac{n-1}{n-k}\right)\left(\frac{M}{M-1}\right)(X'X)^{-1}\left(\sum_{h=1}^{M}\psi'_h\psi_h\right)(X'X)^{-1}$$

where the symbol n is the total number of observations for all individual workers in the sample, k denotes the number of parameter estimates, M denotes the number, and of industry clusters, X is the information matrix, Ψ denotes the within-industry cluster weighted sum of individual worker-level contributions to the change in the log likelihood function with respect to a change in the vector of parameter estimates, and the symbol h denotes individual industries (Huber 1967 and White, 1980). Using this method to adjust standard errors accounts for correlation across individual worker observations within the same industry. The random effects technique is an alternative approach that is commonly used to yield consistent estimates if the error term consists of more than one component. This technique is generally applied when using panel data to account for across industry correlation, however, the information data matrix used in this study is stacked cross-section data for a single year.[12] Therefore, we limit our analysis to the examination of the clustered standard error correction results.

IV. Findings

Wage Results

[12] Estimates using the OLS and random effect were still performed and are presented in Tables A.2 and A.3.

The contents of Table-1 contain the wage results from estimating equation (1) for men and women by educational attainment level.[13] Workers who completed college are classified in the high education sample. The findings on the parameter estimates of the control variables are consistent with standard economic theory. For instance, wage levels are statistically significantly higher for US citizens, those individuals residing in a metropolitan area, residing in the northeast quadrant of the US, married, non-minority, work full-time, are older, and are employed in professional occupations. Last, employment in a large establishment is associated with statistically significantly higher wages only for female workers.

Findings on the key parameter *FDI*, which is (β_3) in equation (1), suggest that foreign direct investment activity is associated with an educational premium for highly educated non-union workers. For instance, the contents in columns (1) and (2) of the first row of Table-1 show wages increase a statistically significant 1.5 and 0.95 percent for each one percentage point increase in FDI activity for highly educated on-union women and men, respectively. These wage findings contrast sharply with the findings for non-union workers who don't acquire a college education as the contents of columns (3) and (4) of the first row show wages do not change significantly with changes in FDI activity.

Findings on the parameter *union*, which is (β_4) in equation (1), suggest that union workers employed in industries without FDI activity receive a statistically significant premium over non-union workers employed in these industries. For instance, the

[13] Wage findings derived from using OLS and random effects estimation techniques are presented in Tables A.2 and A.3 of the appendix. These results for the estimated coefficients generally resemble the results derived from correcting for clustered standard errors. The level of statistical significance for the corrected clustered standard error results; though, are generally smaller than that reported when using OLS and random effect estimations. The only notable difference among the key estimated coefficients is the relatively large and statistically significant value of the FDI parameter for highly educated men arising from the estimation results using the random effects technique.

contents in the second row of Table-1 shows union workers employed in non-FDI industries receive wages that are 8.18 and 12.80 percent higher than wages for non-union worker in these industries, respectively for highly educated women and men and 13.76 and 29.73 percent higher, respectively for women and men with low educational attainment.[14] These union wage results for workers in non-FDI industries differ markedly from the findings for union workers employed in industries with FDI activity as the estimated coefficient on the *union*×*FDI* interaction term indicates a statistically significant erosion of the union premium for women in both educational attainment groups and for men in the low educational attainment group. Using the coefficient estimate on the interaction term and the union status parameter at the mean FDI activity value of 5.4 percent gives union premiums of 3.19, 6.32 and 26.4 percent for highly educated women and men and low education attaining men, respectively.[15]

Non-wage Compensation Results

The contents of Tables 2 and 3 contain the pension and health care results derived from estimating equations (2) and (3), respectively. The findings on the control variables for the pension estimates in Table 2 suggest that workers who are US citizens, employed fulltime, attain a higher level of education within each education group and workers employed in large establishments have a statistically significantly higher probability of receiving employer funder pension. The findings on the control variables for the health care estimates in Table 3 suggest that workers who are older, work fulltime, and are

[14] Note that these estimated coefficients are converted to percentage changes using the following equation: $(\varepsilon^{\beta 4}-1)\times 100$.

[15] The mean value of FDI activity is taken from the BEA Foreign Direct Investment Establishment Data for 2002.

employed in large establishments have a statistically significantly higher probability of receiving employer funder health care benefits.

Findings for the estimated coefficient on the *FDI* parameter suggest that in general foreign direct investment activity is associated with a statistically significant increase in the probability a worker receives employer funded health care. For instance, the contents of the first row of Table 2 indicate a one percentage point increase in FDI activity is associated with1.09, 0.43 and 0.87 percent increase in the respective probability of high education attainment non-union males and low education attainment non-union females and males receiving health care coverage.[16] The contents of the first row of Table 3 indicate a one percentage point increase in FDI activity is associated with1.04, 0.43 and 0.59 percent increase in the respective probability of non-union high education attainment males and non-union low education attainment females and males receiving health care coverage.

Findings reported in row (2) of Tables 2 and 3 for the estimated coefficient on the *union* parameter suggest that low education attainment union workers employed in non-FDI industries are statistically significantly more likely to receive pension and health care coverage compared to low education attainment non-union workers in these industries. For instance, the union-non-union pension coverage probability differential is 17.94 and 30.77 percent for low educational attainment women and men in non-FDI activity industry sectors, respectively. The health care coverage differential is 24.12 and 23.57 for low educational attainment women and men in non-FDI activity industry sectors, respectively. The only worker group classified in the high education attainment that has

[16] While these percentage changes may seem small, the predicted FDI-non-FDI pension probability differential for a high educational attainment non-union male employed in metal mining, which is the industry with the highest level of FDI activity (39.7percent), is 43.27 percent.

a statistically significant union-non-union fringe benefit probability differential is women receiving health care coverage. That differential is 27.24 percent, which is comparable to the differential for women in the low education attainment sample and is appreciably higher than the non-significant differential for men in the high education attainment sample.

In general FDI activity does not significantly change union-nonunion benefit coverage differentials. The findings for the estimated coefficients on the *union*×*FDI* parameter suggests a statistically significant change only for highly educated men receiving employer funded pension coverage and highly educated women receiving employer funded health care coverage. Using the coefficient estimate on the interaction term and the union status parameter at the mean FDI activity value of 5.4 percent gives a union-non-union pension coverage probability differential equaling 23.74 percent for highly educated men and a 2.4 percent health care probability differential for highly educated women. Interestingly, the union-non-union pension differential for highly educated men employed in the hypothetical mean FDI activity industry sector resembles the differential for low education attainment women in non-FDI industries. It is also interesting to note that the union-non-union health coverage probability differential for highly educated women calculated at the mean FDI activity level falls to a level that more closely resembles the probability level of highly educated men in non-FDI industries.

V. Summary and Concluding Remarks

This study examines the labor market consequences of FDI activity in non-manufacturing industries by estimating wage and non-wage compensation equations for US domestic

workers. Insights from past research on manufacturing industries reveal the importance of workers' level of educational attainment and their union status as determinants of wage levels for domestic workers employed in foreign owned companies. Within this study's conceptual framework we hypothesize that foreign owners are motivated to pay a premium for highly educated workers as well as reduce pay premiums for union workers.

Wage findings are consistent with the study's hypotheses as we find highly educated non-union workers receive an FDI wage premium, and union workers employed in FDI industries receive relative smaller wage premiums compared to wage premiums for union workers in non-FDI industries. Union wage findings are consistent with the argument that foreign investors exhibit cost-saving behavior when making labor market decisions. Non-union wage findings do not necessarily contradict the labor cost-savings framework used in this study assuming the attainment of a high level of education is associated with high productivity. Non-wage compensation findings are new and provide the opportunity to examine whether the wage pattern associated with FDI activity is indicative of overall compensation trends. Non-wage compensation patterns for non-union workers do resemble wage patterns for highly educated non-union workers, as high FDI activity is associated with a higher probability that non-union workers receive fringe benefits. Union workers employed in FDI industries are just as likely as non-union workers employed in these industries to receive fringe benefits. These wage and non-wage compensation findings for union workers are interesting in that they comport well with the notion that unions are willing to compromise on wage gains as a tradeoff for maintaining union fringe benefits for their members.

We interpret the wage and non-wage compensation findings from this study to suggest that domestic non-union workers in the US are the primary labor market beneficiaries of FDI activity, and highly educated non-union workers is the group that benefited the most. Non-trivial compensation gains for non-union workers are significant given that this group of workers accounts for nearly 90 percent of the payroll of non-manufacturing industries.[17] The unmatched wage gains experience by highly educated non-union workers employed in industries with high FDI activity underscores the growing importance of education in a globalized society.

[17] Information taken from Hirsch and Mcpherson's union source web-site shows that only 11.2 percent of US workers employed in non-manufacturing industry sectors were union members for 2002. Source: www.uionstats.com

Table 1: Clustered Standard Errors Regression Results Derived From Estimating Wage Equation (1)

	HIGH EDUCATION		LOW EDUCATION	
Ln(wage)	Female	Male	Female	Male
FDI	**0.0153269**	**0.0095177**	**0.0034188**	**0.0019711**
	(3.34)	**(2.74)**	**(0.91)**	**(0.75)**
Union	**0.0786917**	**0.1205889**	**0.1282906**	**0.2603429**
	(2.42)	**(1.74)**	**(4.74)**	**(13.93)**
union×FDI	**-0.00924**	**-0.012455**	**-0.001022**	**-0.006154**
	(-1.76)	**(-1.9)**	**(-0.32)**	**(-2.23)**
US Citizen	0.1118319	0.0432936	0.0888304	0.1257616
	(3.63)	(1.06)	(5.91)	(12.19)
HS Diploma	____	____	0.1671213	0.165787
	____	____	(11.81)	(19.17)
Some College	____	____	____	____
	____	____	____	____
BA	-0.149069	-0.111567	____	____
	(-5.27)	(-6.01)	____	____
Graduate	____	____	____	____
	____	____	____	____
Metropolitan	0.1723901	0.1793114	0.1121198	0.0576698
	(7.6)	(8.47)	(13.57)	(7.09)
Veteran	-0.020568	-0.01751	0.0596064	0.028958
	(-0.73)	(-0.98)	(1.47)	(2.64)
Married	0.0306668	0.1088576	0.02635	0.1019796
	(3.41)	(9.67)	(2.89)	(7.04)
White	0.0606397	0.0630981	0.0343867	0.0805675
	(4.51)	(3.53)	(3.5)	(9.12)
Full Time	0.0747657	0.0780009	0.1176016	0.1508567
	(2.84)	(2.93)	(8.34)	(5.2)
Sales	0.4189561	0.4442959	0.155592	0.0716674
	(7.3)	(11.6)	(4.87)	(2.62)
Service	0.1525818	-0.050078	-0.000317	-0.14333
	(2.82)	(-1.21)	(-0.01)	(-4.92)
Craft	0.430703	0.2905033	0.1797234	0.201192
	(4.9)	(8.18)	(3.53)	(8.6)
Professional	0.7036543	0.6476477	0.3603136	0.311539
	(12.25)	(18.79)	(11.14)	(12.07)
North East	0.0120414	0.0320201	0.0237618	0.0112309
	(0.7)	(2.36)	(2.3)	(1.3)
Midwest	-0.052473	-0.035431	-0.023077	-0.024855
	(-3.9)	(-2.82)	(-2.18)	(-2.15)
South	-0.049903	-0.021519	-0.065062	-0.057331
	(-3.26)	(-1.56)	(-6.78)	(-3.11)
Age	0.0560479	0.0571884	0.0258463	0.0359939
	(17.14)	(13.19)	(8.94)	(10.97)
Age^2	-0.000624	-0.00059	-0.000263	-0.000381
	(-15.39)	(-11.88)	(-8.25)	(-10.56)
Estb-size	0.0001769	-2.55E-05	0.0001056	-0.000055
	(4.47)	(-0.55)	(2.92)	(-1.46)
Constant	0.8250191	0.9672493	1.16075	1.128973
	(8.58)	(8.21)	(15.73)	(27.13)
R-sq	0.22	0.19	0.24	0.31
#Obs	12702	13664	22708	24685

Table 2: Probit Estimation for Pension Plan Equation (2) that Corrects for Clustered Standard Errors

Variables	High Education		Low Education	
	Female	Male	Female	Male
FDI	**.0040602**	**.0109915**	**.0043113**	**.0087435**
	(1.36)	**(4.45)**	**(1.88)**	**(4.48)**
Union	**.0915592**	**.0586842**	**.1794713**	**.3077718**
	(1.48)	**(0.91)**	**(3.30)**	**(8.49)**
Union×FDI	**-.000587**	**.0331074**	**.0005256**	**-.0036101**
	(-0.05)	**(1.83)**	**(0.09)**	**(-0.77)**
US Citizen	.1631922	.1884873	.1216319	.182949
	(3.14)	(4.28)	(3.16)	(5.80)
War Veteran	.0124993	-.0202069	-.0010837	.0682783
	(0.14)	(-0.63)	(-0.01)	(2.27)
Married	.0264702	.0653335	-.0022284	.047549
	(1.01)	(2.51)	(-0.10)	(2.14)
White	-.0323683	.0112392	-.0354241	.0295914
	(-1.05)	(0.38)	(-1.40)	(1.17)
Metropolitan	.0054536	-.0304985	-.0151474	-.0470564
	(0.19)	(-1.22)	(-0.63)	(-1.99)
Fulltime	.1769599	.2613282	.1831122	.2145948
	(5.83)	(5.00)	(8.30)	(7.03)
Age	.0077512	.0108818	.016892	.0057405
	(1.02)	(1.72)	(4.01)	(1.30)
Age^2	-.000084	-.0001502	-.0001638	-.0000493
	(-0.95)	(-2.14)	(-3.26)	(-0.93)
Diploma	.0541418	-.0038845	.0881858	.0817106
	(1.90)	(-0.16)	(3.61)	(3.53)
North East	-.0072237	-.0011117	.0134335	-.0156554
	(-0.21)	(-0.04)	(0.48)	(-0.56)
Mid West	.0161703	.0172312	.0305043	.032086
	(0.47)	(0.58)	(1.12)	(1.19)
South	-.0418635	-.0058193	-.0409994	-.0303513
	(-1.23)	(-0.20)	(-1.53)	(-1.20)
Professional	.0933863	.2672023	.1211621	.1040621
	(0.89)	(5.11)	(2.63)	(2.86)
Sales	.0106139	.1734151	.1232225	.078151
	(0.10)	(3.85)	(3.16)	(2.82)
Service	-.1586223	.065233	-.046516	-.0476878
	(-1.29)	(1.01)	(-1.15)	(-1.67)
Craft	.0184237	.0732173	.0792284	-.0255243
	(0.12)	(1.24)	(1.24)	(-1.02)
Estb-size	.0002728	.0001417	.0003941	.0004412
	(5.74)	(2.58)	(8.13)	(5.38)
Number of Obs.	1608	1826	3185	3282
Likelihood Ratio	171.06	185.95	542.46	562.53

Z-scores presented in parentheses

Table 3: Probit Estimation for Health Insurance Coverage Equation (3) that Corrects for Clustered Standard Errors

Variables	High Education		Low Education	
	Female	Male	Female	Male
FDI	**.0104399**	**.0059953**	**.0015647**	**.0059696**
	(3.06)	**(2.71)**	**(0.68)**	**(2.92)**
Union	**.2724604**	**.0757699**	**.2412053**	**.3357887**
	(3.96)	**(1.16)**	**(4.46)**	**(8.63)**
Union×FDI	**-.0461613**	**.0388499**	**-.0074881**	**-.00353**
	(-2.62)	**(1.49)**	**(-1.32)**	**(-0.70)**
US Citizen	.0895324	.0564593	.0569383	.1302489
	(1.58)	(1.48)	(1.53)	(4.05)
War Veteran	-.0239216	-.0086791	-.1216323	.0926561
	(-0.23)	(-0.30)	(-1.49)	(2.93)
Married	-.2127417	.0026028	-.1408328	.0198835
	-7.41	(0.11)	(-6.64)	(0.87)
White	.0025886	.025449	-.0141011	-.0019492
	(0.07)	(0.93)	(-0.56)	(-0.07)
Metropolitan	.0525709	-.0140502	-.0241805	-.0340962
	(1.67)	(-0.61)	(-1.02)	(-1.38)
Fulltime	.4257986	.3089571	.3471277	.3932784
	(12.87)	(6.24)	(16.33)	(12.08)
Age	.0270593	.0097138	.0297633	.0288825
	(3.10)	(1.68)	(6.83)	(6.23)
Age^2	-.0003185	-.0001171	-.0002786	-.0002809
	(3.09)	(-1.81)	(-5.38)	(-5.08)
Diploma	.0427688	-.0063163	.1189225	.1148187
	(1.35)	(-0.29)	(4.82)	(4.74)
North East	-.044067	-.0354629	.0038685	-.0353992
	(-1.13)	(-1.29)	(0.14)	(-1.20)
Mid West	-.0601951	-.0021028	-.0241533	.0070484
	(-1.55)	(-0.08)	(-0.89)	(0.25)
South	-.0428577	.0116875	-.0173847	.0005392
	(-1.12)	(0.44)	(-0.65)	(0.02)
Professional	.1537134	.1357597	.1620203	.1167862
	(1.23)	(2.80)	(3.40)	(3.04)
Sales	.0711914	.0526701	.1237474	.0078272
	(0.59)	(1.17)	(3.11)	(0.27)
Service	-.0711108	-.0132976	.1937834	-.1485375
	(-0.52)	(-0.20)	(0.71)	(-4.82)
Craft	.1365606	-.0173189	.082072	-.0106733
	(0.85)	(-0.29)	(2.37)	(-0.41)
Estb-size	.0002179	.0000952	.0002071	.0002332
	(4.35)	(1.89)	(4.53)	(2.86)
Number of Obs.	1608	1826	3185	3282
Likelihood Ratio	398.07	133.12	889.08	1062.65

Z-scores presented in parentheses

Appendix

Table A.1: Description of Variables

Variable	Description
FDI	Foreign direct Investment measured as the percentage of US workers employed in the foreign-owned establishments.
Union	Dummy variable equaling 1if a worker belongs to a union.
US Citizen	Dummy equaling 1 if a worker is a US citizen.
HS Diploma	Dummy equaling 1 if a worker attained at most a high school diploma
Some College	Dummy equaling 1 if a worker attended college and receive at most an Associate's degree.
BA	Dummy equaling 1 if a worker attended college and received a Bachelor's degree
Graduate	Dummy equaling 1 if a worker attended college and received at minimum a Master's degree
Metropolitan	Dummy equaling 1 if a worker resides in a standard statistical metropolitan area
Veteran	Dummy equaling 1 if a worker is a war veteran
Married	Dummy equaling 1 if a worker is married
White	Dummy equaling 1 if a worker's race is white
Full time	Dummy equaling 1 if a worker is employed fulltime
Sales	Dummy equaling 1 if a worker's occupation is classified as technical, sales or administrative support.
Service	Dummy equaling 1 if a worker's occupation is classified as service
Craft	Dummy equaling 1 if a worker's occupation is classified as craft
Professional	Dummy equaling 1 if a worker's occupation is classified as professional
Laborer	Dummy equaling 1 if a worker's occupation is classified as laborer, this is the benchmark comparison occupation
North East	Dummy equaling 1 if a worker resides in the north east quadrant of the US
Midwest	Dummy equaling 1 if a worker resides in the mid-west quadrant of the US
South	Dummy equaling 1 if a worker resides in the southern quadrant of the US
West	Dummy equaling 1 if a worker resides in the western quadrant of the US, this is the benchmark comparison region
Age	The worker's age in years
Estb- size	Establishment size measured as number of employees in all US establishments divided by the number of all US establishments.

TABLE A.2: Wage Results for Three Alternative Estimation Approaches for the Sample of High Educational Attainment Workers

	OLS		**RANDOM EFFECTS**		**CLUSTER**	
Ln(wage)	Female	Male	Female	Male	Female	Male
FDI	**0.0153269**	**0.0095177**	**0.0127524**	**0.0088235**	**0.0153269**	**0.0095177**
	(12.4)	**(8.34)**	**(5.49)**	**(5.49)**	**(3.34)**	**(2.74)**
Union	**0.0786917**	**0.1205889**	**0.0841763**	**0.104501**	**0.0786917**	**0.1205889**
	(3.64)	**(4.35)**	**(3.95)**	**(3.73)**	**(2.42)**	**(1.74)**
union×FDI	**-0.00924**	**-0.012455**	**-0.00477**	**-0.008616**	**-0.00924**	**-0.012455**
	(-1.97)	**(-3.69)**	**(-1.03)**	**(-2.49)**	**(-1.76)**	**(-1.9)**
US Citizen	0.1118319	0.0432936	0.1062809	0.0430293	0.1118319	0.0432936
	(5.9)	(2.21)	(5.72)	(2.22)	(3.63)	(1.06)
BA	-0.149069	-0.111567	-0.142595	-0.092624	-0.149069	-0.111567
	(-14.12)	(-10.14)	(-13.62)	(-8.21)	(-5.27)	(-6.01)
Metropolitan	0.1723901	0.1793114	0.1492172	0.1606282	0.1723901	0.1793114
	(13.34)	(12.04)	(11.77)	(10.87)	(7.6)	(8.47)
Veteran	-0.020568	-0.01751	-0.032223	-0.023473	-0.020568	-0.01751
	(-0.53)	(-1.17)	(-0.86)	(-1.59)	(-0.73)	(-0.98)
Married	0.0306668	0.1088576	0.0252145	0.093815	0.0306668	0.1088576
	(3.32)	(9.79)	(2.79)	(8.55)	(3.41)	(9.67)
White	0.0606397	0.0630981	0.0592754	0.0649026	0.0606397	0.0630981
	(4.86)	(4.2)	(4.85)	(4.37)	(4.51)	(3.53)
Full Time	0.0747657	0.0780009	0.0579176	0.0679602	0.0747657	0.0780009
	(7.23)	(4.92)	(5.68)	(4.34)	(2.84)	(2.93)
Sales	0.4189561	0.4442959	0.3366618	0.3941744	0.4189561	0.4442959
	(9.42)	(16.83)	(7.6)	(14.65)	(7.3)	(11.6)
Service	0.1525818	-0.050078	0.1520479	0.0105801	0.1525818	-0.050078
	(3.2)	(-1.43)	(3.15)	(0.29)	(2.82)	(-1.21)
Craft	0.430703	0.2905033	0.322906	0.2312498	0.430703	0.2905033
	(5.99)	(8.64)	(4.53)	(6.8)	(4.9)	(8.18)
Professional	0.7036543	0.6476477	0.6430141	0.5890413	0.7036543	0.6476477
	(15.91)	(25.07)	(14.55)	(22.36)	(12.25)	(18.79)
North East	0.0120414	0.0320201	0.0046805	0.0197185	0.0120414	0.0320201
	(0.96)	(2.36)	(0.38)	(1.46)	(0.7)	(2.36)
Midwest	-0.052473	-0.035431	-0.057013	-0.04217	-0.052473	-0.035431
	(-4.15)	(-2.55)	(-4.6)	(-3.07)	(-3.9)	(-2.82)
South	-0.049903	-0.021519	-0.061512	-0.026294	-0.049903	-0.021519
	(-3.98)	(-1.61)	(-5.02)	(-1.99)	(-3.26)	(-1.56)
Age	0.0560479	0.0571884	0.0531641	0.0569855	0.0560479	0.0571884
	(21.45)	(20.35)	(20.8)	(20.53)	(17.14)	(13.19)
Age^2	-0.000624	-0.00059	-0.000586	-0.00058	-0.000624	-0.00059
	(-20.42)	(-18.77)	(-19.61)	(-18.69)	(-15.39)	(-11.88)
Estb-size	0.0001769	-2.55E-05	0.0000712	0.0000272	0.0001769	-2.55E-05
	(11.21)	(-1.03)	(0.81)	(0.43)	(4.47)	(-0.55)
Constant	0.8250191	0.9672493	0.9635049	0.9912658	0.8250191	0.9672493
	(11.33)	(14.11)	(13.17)	(14.44)	(8.58)	(8.21)
R-Sq	0.22	0.19	0.21	0.19	0.22	0.19
#Obs	12702	13664	12702	13664	12702	13664
#Clusters	142	144	142	144	142	144

Note: Numbers in parentheses are t-statistics.

TABLE A.3: Wage Results for Three Alternative Estimation Approaches for the Sample of Low Educational Attainment Workers

	OLS		**RANDOM EFFECTS**		**CLUSTER**	
Ln(wage)	Female	Male	Female	Male	Female	Male
FDI	**0.0034188**	**0.0019711**	**0.007427**	**0.0095352**	**0.0034188**	**0.0019711**
	(4.73)	**(2.91)**	**(4.48)**	**(6.21)**	**(0.91)**	**(0.75)**
Union	**0.1282906**	**0.2603429**	**0.1151688**	**0.2267433**	**0.1282906**	**0.2603429**
	(8.1)	**(22.35)**	**(7.22)**	**(19.14)**	**(4.74)**	**(13.93)**
union×FDI	**-0.001022**	**-0.006154**	**0.0017279**	**-0.004871**	**-0.001022**	**-0.006154**
	(-0.54)	**(-4.48)**	**(0.89)**	**(-3.37)**	**(-0.32)**	**(-2.23)**
US Citizen	0.0888304	0.1257616	0.0748604	0.1209883	0.0888304	0.1257616
	(7.67)	(13.31)	(6.53)	(12.94)	(5.91)	(12.19)
HS Diploma	0.1671213	0.165787	0.1457245	0.1590012	0.1671213	0.165787
	(22.61)	(23.42)	(19.96)	(22.84)	(11.81)	(19.17)
Metropolitan	0.1121198	0.0576698	0.0980393	0.0645472	0.1121198	0.0576698
	(16.48)	(8.11)	(14.58)	(9.13)	(13.57)	(7.09)
Veteran	0.0596064	0.028958	0.0405493	0.0166849	0.0596064	0.028958
	(1.85)	(3.06)	(1.28)	(1.79)	(1.47)	(2.64)
Married	0.02635	0.1019796	0.0209696	0.0868141	0.02635	0.1019796
	(4.11)	(14.82)	(3.33)	(12.84)	(2.89)	(7.04)
White	0.0343867	0.0805675	0.022294	0.0671428	0.0343867	0.0805675
	(4.34)	(9.26)	(2.85)	(7.85)	(3.5)	(9.12)
Full Time	0.1176016	0.1508567	0.0988428	0.1261175	0.1176016	0.1508567
	(18.24)	(18.67)	(15.5)	(15.79)	(8.34)	(5.2)
Sales	0.155592	0.0716674	0.1258263	0.0986479	0.155592	0.0716674
	(13.2)	(7.91)	(10.31)	(10.11)	(4.87)	(2.62)
Service	-0.000317	-0.14333	0.0220589	-0.060074	-0.000317	-0.14333
	(-0.03)	(-15.85)	(1.62)	(-5.02)	(-0.01)	(-4.92)
Craft	0.1797234	0.201192	0.1488329	0.1649687	0.1797234	0.201192
	(7.15)	(25.38)	(5.91)	(18.98)	(3.53)	(8.6)
Professional	0.3603136	0.311539	0.3423005	0.332913	0.3603136	0.311539
	(25.98)	(25.77)	(23.89)	(26.62)	(11.14)	(12.07)
North East	0.0237618	0.0112309	0.0242071	0.017067	0.0237618	0.0112309
	(2.78)	(1.29)	(2.86)	(1.99)	(2.3)	(1.3)
Midwest	-0.023077	-0.024855	-0.020799	-0.019372	-0.023077	-0.024855
	(-2.8)	(-2.92)	(-2.56)	(-2.31)	(-2.18)	(-2.15)
South	-0.065062	-0.057331	-0.063184	-0.062484	-0.065062	-0.057331
	(-8.08)	(-7.2)	(-7.98)	(-7.98)	(-6.78)	(-3.11)
Age	0.0258463	0.0359939	0.0231082	0.0338597	0.0258463	0.0359939
	(21.79)	(27.73)	(19.67	(26.35)	(8.94)	(10.97)
Age^2	-0.000263	-0.000381	-0.000234	-0.000357	-0.000263	-0.000381
	(-18.75)	(-24.33)	(-16.88)	(-23.09)	(-8.25)	(-10.56)
Estb- Size	0.0001056	-0.000055	0.0000586	-4.42E-05	0.0001056	-0.000055
	(7.15)	(-2.07)	(0.86)	(-0.62)	(2.92)	(-1.46)
Constant	1.16075	1.128973	1.302939	1.147063	1.16075	1.128973
	(41.88)	(42.14)	(43.55)	(39.1)	(15.73)	(27.13)
R-Sq	0.24	0.31	0.23	0.3	0.24	0.31
#Obs	22708	24685	22708	24685	22708	24685
#Clusters	144	143	144	143	144	143

Note: Numbers in parentheses are t-statistics.

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